

#### 4.1.3. CALIBRATION OF DOBSON SPECTROPHOTOMETERS

Seven Dobson ozone spectrophotometers in the CMDL network, as well as 20 others (Table 4.3), were calibrated during 1998 and 1999. Table 4.3 lists the calibration difference expressed as a percent ozone difference. This percent difference is between ozone calculated from the test and the standard instrument measurements with the most common observation type averaged from  $\mu$  (optical path length through the atmosphere calculated from solar zenith angle) values of 1, 2, and 3, and a total ozone value of 300 Dobson Units (DU), before

any repair or calibration adjustment is made. The table also lists the place of the calibration and the standard instrument used.

CMDL participated in international Dobson spectrophotometer calibrations at the WMO Region VI (Europe) Regional Dobson Calibration Center at Hohenpeissenberg, Germany, and the Swiss Meteorological Institute (SMI) Lichklimatisches Observatorium (LKO) at Arosa, Switzerland, in July-August 1999, and the Argentine Servicio Meteorológico Nacional (SMN) Buenos Aires Observatory in November-December 1999 as part of its role as the World Center for Dobson Calibrations. Instruments for Lerwick, Scotland, Buenos Aires, Argentina, and the Japanese regional standard Dobson instrument were calibrated in Boulder during this period.

TABLE 4.3. Dobson Ozone Spectrophotometers Calibrated in 1998-1999

Station	Instrument Number	Previous Calibration Date	Calibration Correction (%)	Standard Number	Place
<i>1998</i>					
Tallahassee, Florida	58	Sept. 23, 1994	+1.2	65	Boulder, Colorado
Fairbanks, Alaska	63	May 29, 1992	+0.4	65	Boulder, Colorado
Hanford, California	94	Sept. 15, 1994	+0.6	65	Boulder, Colorado
Buenos Aires, Argentina	97	June 1994	N/A*	83	Boulder, Colorado
Tsukuba, Japan	116	July 1995	-2.0	65	Boulder, Colorado
<i>1999</i>					
Wallops Island, Virginia	38	April 27, 1995	0.0	83	Boulder, Colorado
Barrow, Alaska	91	Sept. 15, 1994	+0.5	83	Boulder, Colorado
Armenia (Proposed)	44	N/A	N/A	65	Hohenpeissenberg, Germany
Camborne, United Kingdom	41	July 30, 1995	+0.6	65	LKO Arosa
Sestola, Italy	48	July 25, 1995	-0.5	65	LKO Arosa
Bordeaux, France	49	July 30, 1995	+0.2	65	LKO Arosa
Oslo, Norway	56	June 22, 1994	-0.9	65	LKO Arosa
Arosa, Switzerland	62	1995	+0.9	65	LKO Arosa
Hohenpeissenberg, Germany	64	July 22, 1997	+0.4	65	LKO Arosa
Aswan, Egypt	69	May 25, 1993	+2.5	65	LKO Arosa
Hradec Kralove, Czech Republic	74	July 22, 1997	-0.3	65	LKO Arosa
L'OHP, France	85	July 10, 1992	+1.5	65	LKO Arosa
Arosa, Switzerland	101	1995	+1.3	65	LKO Arosa
Moscow, Russia	107	July 30, 1995	-0.3	65	LKO Arosa
El Arenosillo, Spain	120	June 22, 1994	+1.6	65	LKO Arosa
Marcapomacocha, Peru	87	June 22, 1994	+0.7	65	Buenos Aires, Argentina
Buenos Aires, Argentina	97	June 7, 1998	0.0	65	Buenos Aires, Argentina
Marambio, Antarctica (Argentina)	99	Aug. 31, 1992	+2.5	65	Buenos Aires, Argentina
Cachoeira Paulista, Brazil	114	Nov. 24, 1980	+0.1	65	Buenos Aires, Argentina
referenced to 1995					
Ushuaia, Argentina	131	June 22, 1994	+0.2	65	Buenos Aires, Argentina
Comodoro Rivadavia, Argentina	133	April 12, 1995	-0.5	65	Buenos Aires, Argentina
Salto, Uruguay	134	April 12, 1995	-0.8	65	Buenos Aires, Argentina

\*Instrument damaged